



## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

[RTID 0648-XC395]

#### **Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Skagway Ore Terminal Redevelopment Project in Skagway, Alaska**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

**SUMMARY:** NMFS has received a request from the Municipality of Skagway (MOS) for authorization to take marine mammals incidental to the Ore Terminal redevelopment in Skagway, Alaska. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, 1-year renewal that could be issued under certain circumstances and if all requirements are met, as described in the **Request for Public Comments** section at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

**DATES:** Comments and information must be received no later than [*insert date 30 days after date of publication in the FEDERAL REGISTER*].

**ADDRESSES:** Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service and should be submitted via email to *ITP.harlacher@noaa.gov*.

*Instructions:* NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period.

Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

**FOR FURTHER INFORMATION CONTACT:** Jenna Harlacher, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*. In case of problems accessing these documents, please call the contact listed above.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

### **National Environmental Policy Act**

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review. We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

## **Summary of Request**

On August 9, 2022, NMFS received a request from MOS for an IHA to take marine mammals incidental to Ore Terminal redevelopment in Skagway, Alaska. Following NMFS' review of the application and subsequent revised versions, MOS submitted a final application that was deemed adequate and complete on February 23, 2023. MOS's request is for take of 7 species (including 11 stocks) by Level B and Level A harassment. Neither MOS nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

## **Description of Proposed Activity**

### *Overview*

MOS proposes to redevelop the Skagway Ore Terminal in Skagway, Alaska. The proposed project will cover construction from fall 2023 through spring 2024 to avoid construction during cruise ship season. A maximum of 152 days of pile installation and removal activity will occur, with some days including both impact and vibratory pile driving. This project involves installation and removal of 36 temporary steel pile guides, removal of 692 piles, and installation of 244 permanent steel piles. Two different installation methods will be used including vibratory pile driving and impact pile driving. Sounds resulting from pile installation and removal may result in the incidental take of marine mammals by Level A and Level B harassment in the form of auditory injury or behavioral harassment.

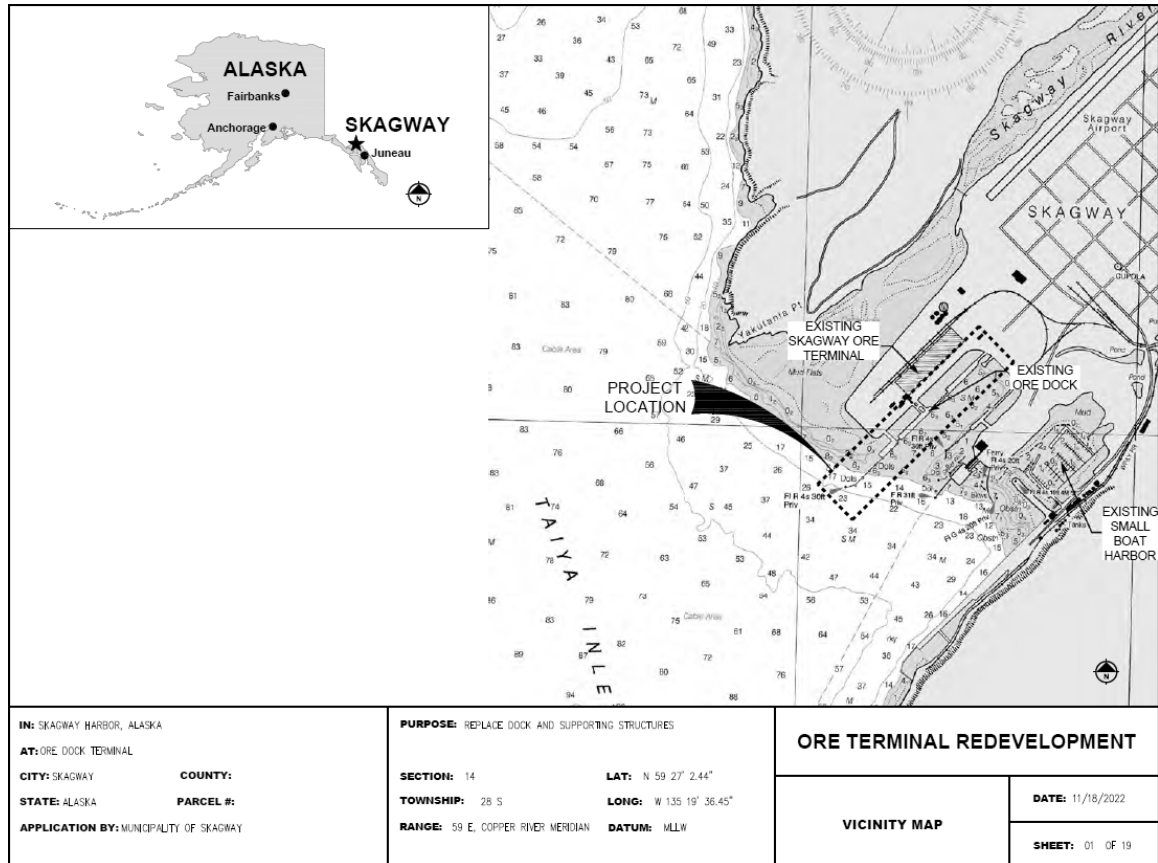
### *Dates and Duration*

The proposed IHA would be effective from November 2023 through March 2024. The total expected work duration would be a max of 152 days with some days including both impact and vibratory pile driving (a total of 134 days of vibratory pile installation and 77 days of impact pile driving). This estimate is the maximum days of activity possible and is a conservative estimate that includes any potential delays. Because of the

short construction season and limited winter daylight hours, construction would occur during both daylight hours and for a short time after sunset, with construction lighting.

### *Specific Geographic Region*

The proposed activity will occur in Skagway, Alaska, within the Skagway Ore Basin (Figure 1). Skagway is the northernmost city in Southeast Alaska. The MOS is at the southwestern end of the 2.5-mile (4 kilometer) long Skagway River valley, which empties into Taiya inlet at the head of Lynn Canal. The Ore Terminal is a deep-water port that transitions sharply from a limited nearshore area into deep marine waters of Lynn Canal. The Ore Terminal basin area has nearly uniform depth of approximately 40 feet (12.2 meters) lower low water.



**Figure 1—Skagway Ore Terminal Project Location**

### *Detailed Description of Specific Activity*

The proposed project will remove 269 steel and 423 creosote-treated timber piles from the existing Ore dock in Skagway Harbor. These piles will be removed using the vibratory hammer or directly pulled using a clamshell bucket. MOS proposes to install and remove 36 temporary steel piles using vibratory hammers; these piles will be removed by vibratory means by the end of construction. The temporary piles will act as supports or reaction frames to facilitate the installation of permanent piling. Steel permanent piles (248) will be installed to support the new dock structures, as part of the mooring dolphins, and as fender piles. Piles will be driven to the maximum depth feasible using a vibratory pile driver and partially driven and proofed using an impact pile driver to reach required depths. The piles would be installed using both methods over 152 days (Table 1).

Additional actions occurring under the proposed action that are not anticipated to generate in-water noise resulting in marine mammal harassment include vessel movements to support construction and out of water dock components. NMFS does not expect that these ancillary activities will harm or harass marine mammals and no incidental takes are expected as a result of these activities. Therefore, these activities are not discussed further in this document.

**Table 1—Pile Installation Methods and Durations**

Pile size, Method	Number of piles	Duration/Strikes per pile	Piles Drive/Day	Estimated Days
36-in steel pile**, Impact Installation	78	1800 strikes	2	39
24-in steel pile, Impact Installation	170	700 strikes	5	38
30-in steel pile*, Vibratory Installation and Removal	439	45 min	5	95
36-in steel pile**, Vibratory Installation	74	45 min	5	15
14-in timber pile, Vibratory Removal	423	21 min	18	24

\*Includes pile sizes: 10.75-in, 14-in, 16-in, 20-in, 24-in, 28-in, and 30-in.

\*\*Includes pile sizes: 36-in, 42-in, and 48-in.

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Proposed Mitigation** and **Proposed Monitoring and Reporting**).

### **Description of Marine Mammals in the Area of Specified Activities**

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, referenced here, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; [www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments](http://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments)) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS' website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species or stocks for which take is expected and proposed to be authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed

from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is expected to occur, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All stocks managed under the MMPA in this region are assessed in NMFS' 2021 Alaska Marine Mammal SARs. All values presented in Table 2 are the most recent available at the time of publication (including from the draft 2022 SARs) and are available online at: [www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments](http://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments).

**Table 2 -- Species Likely Impacted by the Specified Activities**

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, Nmin, most recent abundance survey) <sup>2</sup>	PBR	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenopteridae (rorquals)						
Humpback whale	<i>Megaptera novaeangliae</i>	Central North Pacific Stock	-,D,Y	10,103 (0.3, 7,890, 2006)	83	26
Minke whale	<i>Balaenoptera acutorostr</i>	Alaska	-, -,N	UNK	NA	0
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	<i>Orca orcinus</i>	Eastern North Pacific, Norther Residents, Southeast Alaska	-, -,N	302 (N/A, 302, 2018)	2.2	0.2
		Eastern North Pacific Alaska Residents	-, -,N	1,920 (N/A, 1,920, 2019)	19	1.3
		West Coast Transients	-, -,N	349 (N/A, 349, 2018)	3.5	0.4
		Gulf, Aleutian, Bering Transients	-, -,N	587 (N/A, 587, 2020)	5.9	0.8



Family Phocoenidae (porpoises)						
Harbor Porpoise	<i>Phocoena phocoena</i>	Southeast Alaska	-, -, N	1,057 (N/A, 1,057, 2019)		34
Dall's porpoise <sup>4</sup>	<i>Phocoenoides dalli</i>	Alaska	-, -, N	15,432 (0.28, 13, 110, 2021)	131	37
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller sea lion	<i>Eumetopias jubatus</i>	Western Stock	E, D, Y	52,932 (N/A, 52,932, 2019)	318	254
		Eastern Stock	-, -, N	43,201 (N/A, 43,201, 2017)	2,592	112
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina richardii</i>	Alaska- Lynn Canal/Stephens Passage	-, -, N	13,388 (N/A, 11,867, 2016)	214	50
<p>1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.</p> <p>2- NMFS marine mammal stock assessment reports online at: <a href="https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports">https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports</a>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.</p> <p>3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.</p> <p>4 – Previous abundance estimates covering the entire stock's range are no longer considered reliable and the current estimates presented in the SARs and reported here only cover a portion of the stock's range. Therefore, the calculated Nmin and PBR is based on the 2015 survey of only a small portion of the stock's range. PBR is considered to be biased low since it is based on the whole stock whereas the estimate of mortality and serious injury is for the entire stock's range.</p>						

On January 24, 2023, NMFS published the draft 2022 SARs

(<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region>). The Alaska and Pacific Ocean SARs include a proposed update to the humpback whale stock structure and the Alaska SAR includes a proposed update to the Southeast Alaska harbor porpoise stock structure. These new structures, if finalized, would modify the MMPA-designated humpback stocks to align more closely with the ESA-designated Distinct Population Segments (DPSs), and for harbor porpoise to align with genetics, trends in abundance, and discontinuous distribution that supports the delineation of two demographically independent populations. Please refer to the draft 2022 Alaska and Pacific Ocean SARs for additional information.

NMFS Office of Protected Resources, Permits and Conservation Division has generally considered peer-reviewed data in draft SARs (relative to data provided in the most recent final SARs), when available, as the best available science, and has done so here for all species and stocks, with the exception of a new proposal to revise humpback whale and harbor porpoise stock structure. Given that the proposed changes to the stock structures involve application of NMFS's Guidance for Assessing Marine Mammals Stocks and could be revised following consideration of public comments, it is more appropriate to conduct our analysis in this proposed authorization based on the status quo stock structure identified in the most recent final SARs (2021; Carretta *et al.*, 2022; Muto *et al.*, 2022).

As indicated above, all 7 species (with 11 managed stocks) in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and for which we have proposed authorization. In addition to what is included in Sections 3 and 4 of the application, the SARs, and NMFS' website, further localized data and detail informing the baseline for select species (*i.e.*, information regarding current Unusual Mortality Events (UME) and important habitat areas) is provided below.

A previous monitoring report from the White Pass & Yukon Route Railroad Dock Dolphin Installation project includes local marine mammal sighting data from Skagway. From their 57-day (March-May) protected species monitoring, no minke whale, harbor porpoise, or Dall's porpoise were sighted near the project area in Skagway. Twenty-six killer whales were sighted on 4 days, including 2 sightings in March and the rest in April. Killer whales were observed traveling, diving and swimming, and were observed greater than 300 m from the project site. Additionally, 735 harbor seals were observed on 46 days of in-water activity, with sightings occurring in all months of the project. The majority of the harbor seal observations were near Yakutania Point, a harbor seal haulout site. Most of the sightings occurred at least 1,000 m from the project site, however harbor

seals came as close as 150 m and as far as 5,000 m. Harbor seals were observed travelling, swimming, playing, milling, looking, hauled out, sinking, and feeding (Owl Ridge Natural Resource Consultants, 2019).

### *Humpback Whale*

Prior to 2016, humpback whales were listed under the ESA as an endangered species worldwide. Following a 2015 global status review (Bettridge *et al.*, 2015), NMFS established 14 Distinct Population Segments (DPS) with different listing statuses (81 FR 62259, September 8, 2016) pursuant to the ESA.

There are two MMPA stocks of humpback whales in the North Pacific in NMFS Alaska Marine Mammal SAR. Humpback whales from the Western North Pacific stock are not likely to be observed in Southeast Alaska and are not expected in the project area. Individuals from the Central North Pacific stock of humpback whales are found in Southeast Alaska and have the potential to be in the project vicinity.

Because DPSs do not overlap exactly with the existing MMPA stocks, there is the possibility that either the Hawaii DPS or the Mexico DPS could be in the project area (Muto *et al.*, 2020). Although NMFS has determined that humpback whales in Southeast Alaska have a 98 percent probability of being from the Hawaii DPS (Wade *et al.*, 2016), there is a 2 percent likelihood that a humpback whale from the Mexico DPS, which is threatened under the ESA, could be in the project area. No critical habitat has been designated for the humpback whale in the vicinity of the Project.

Southeast Alaska primarily provides summer feeding grounds for humpback whales that typically arrive in Southeast Alaska between March and November, although they could be present in Southeast Alaska year-round. Lynn Canal is within the North Pacific feeding and wintering area, and is a biologically important feeding ground for humpback whales (active June- August). However, these areas are outside of Taiya inlet and during months when the activity is not occurring.

Local observers in Taiya Inlet have historically reported humpback whales; however, no scientific surveys have documented the species in the area (Dahlheim *et al.*, 2009). During the White Pass & Yukon Route Railroad Dock Dolphin Installation project, humpback whales were sighted in Taiya Inlet twice in early May. These sightings occurred 3-4 km from the project site and were observed travelling (Owl Ridge Natural Resource Consultants, 2019). Group sizes are largest in summer and fall, increasing over the course of the year and peaking in late August and September (Dahlheim *et al.*, 2009). The Central North Pacific stock is increasing at rates of up to approximately 7 percent per year (ADFG, 2008; Calambokidis *et al.*, 2008).

### *Steller Sea Lion*

Steller sea lions were listed as threatened range-wide under the ESA on November 26, 1990 (55 FR 49204). Steller sea lions were subsequently partitioned into the western and eastern DPSs in 1997 (62 FR 24345, May 5, 1997). The eastern DPS remained classified as threatened until it was delisted in November 2013. The western DPS (those individuals west of the 144° W longitude or Cape Suckling, Alaska) was upgraded to endangered status following separation of the DPSs; it remains endangered today and considered a strategic stock under the MMPA. Both stocks of Steller sea lions are found in Southeast Alaska and have the potential to occur in the project area, however it is more likely they would be from the Eastern stock.

Critical habitat for Steller sea lions was designated by NMFS in 1993 based on the following essential physical and biological habitat features: terrestrial habitat (including rookeries and haulouts important for rest, reproduction, growth, social interactions) and aquatic habitat (including nearshore waters around rookeries and haulouts, free passage for migration, prey resources, and foraging habitats) (58 FR 45269).

During the White Pass & Yukon Route Railroad Dock Dolphin Installation project, Steller sea lions were sighted on 27 separate days with 165 individuals. Majority of the sightings occurred during April and May, with only six individuals sighted in March. Although a few sightings were 500 meters from pile driving activities, most sightings were recorded over 1,000 meters away from the pile driving site. Sightings were of single individuals and rafts up to 25 individuals. Steller sea lions were observed swimming, traveling, resting, porpoising, looking, sinking, and milling (Owl Ridge Natural Resource Consultants, 2019).

Gran Point is the closest major haulout and designated critical habitat area, approximately 24 miles (38.6 kilometers) from the Project site and outside of Taiya Inlet (NOAA, 2022b). Additionally, there is a nearby Steller sea lion haulout at the southern tip of Taiya Inlet utilized by Steller sea lions during the Eulachon run. The Lutak Inlet Eulachon run between April and May correlates with higher sea lion numbers near the Project site, with the Taiya Point haulout (approximately 10 miles (16.1 kilometers) away) being a popular land site (NOAA, 2022b). However, the Eulachon run is outside of the project work window.

#### *Marine Mammal Hearing*

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability

have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

**Table 3 -- Marine Mammal Hearing Groups (NMFS, 2018)**

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, Cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i> )	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite ( <i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> , 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information.

## **Potential Effects of Specified Activities on Marine Mammals and Their Habitat**

This section provides a discussion of the ways in which components of the specified activity may impact marine mammals and their habitat. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The **Negligible Impact Analysis and Determination** section considers the content of this section, the **Estimated Take** section, and the **Proposed Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and whether those impacts are reasonably expected to, or reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

Acoustic effects on marine mammals during the specified activity can occur from impact and vibratory pile driving and removal. The effects of underwater noise from MOS's proposed activities have the potential to result in Level A or Level B harassment of marine mammals in the action area.

#### *Description of Sound Source*

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far. The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.*, waves, wind, precipitation, earthquakes, ice, atmospheric sound), biological (*e.g.*, sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.*, vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise “ambient” or “background” sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the

environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10-20 dB from day to day (Richardson *et al.*, 1995). The result is that, depending on the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

In-water construction activities associated with the project would include vibratory pile removal, and impact and vibratory pile driving. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.*, explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998; ANSI, 2005; NMFS, 2018a). Non-impulsive sounds (*e.g.* aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems) can be broadband, narrowband or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with rapid rise/decay time that impulsive sounds do (ANSI, 1995; NIOSH, 1998; NMFS, 2018a). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.*, Ward 1997 in Southall *et al.*, 2007).

Two types of hammers would be used on this project: impact and vibratory. Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper, 2005). Vibratory hammers install piles by vibrating them and allowing the weight of the



hammer to push them into the sediment. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.*, 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards, 2002; Carlson *et al.*, 2005).

The likely or possible impacts of MOS's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could result from the physical presence of equipment and personnel; however, any impacts to marine mammals are expected to be primarily acoustic in nature. Acoustic stressors include effects of heavy equipment operation during pile driving.

#### *Acoustic Impacts*

The introduction of anthropogenic noise into the aquatic environment from pile driving is the primary means by which marine mammals may be harassed from the MOS's specified activity. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.*, 2007). In general, exposure to pile driving noise has the potential to result in auditory threshold shifts and behavioral reactions (*e.g.*, avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses, such as an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions, such as communication and predator and prey detection. The effects of pile driving noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.*, impulsive vs. non-impulsive), the species, age and sex class (*e.g.*, adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal,

received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.*, 2004; Southall *et al.*, 2007). Here we discuss physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

NMFS defines a noise-induced threshold shift (TS) as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). The amount of TS is customarily expressed in decibels (dB). A TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.*, impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.*, spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.*, how an animal uses sound within the frequency band of the signal; *e.g.*, Kastelein *et al.*, 2014), and the overlap between the animal and the source (*e.g.*, spatial, temporal, and spectral).

*Permanent Threshold Shift (PTS)*—NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.*, 1958, 1959; Ward, 1960; Kryter *et al.*, 1966; Miller, 1974; Ahroon *et al.*, 1996; Henderson *et al.*, 2008). PTS levels for marine mammals are estimates, as with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.*, 2008), there are no empirical data measuring PTS in marine mammals largely due to the fact that, for various ethical reasons,

experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS, 2018).

*Temporary Threshold Shift (TTS)*—TTS is a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). Based on data from cetacean TTS measurements (see Southall *et al.*, 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.*, 2000; Finneran *et al.*, 2000, 2002). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SEL<sub>cum</sub>) in an accelerating fashion: At low exposures with lower SEL<sub>cum</sub>, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SEL<sub>cum</sub>, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.*, recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in *Masking*, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present.

Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.*, 2007), so

we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Many studies have examined noise-induced hearing loss in marine mammals (see Finneran (2015) and Southall *et al.* (2019) for summaries). For cetaceans, published data on the onset of TTS are limited to the captive bottlenose dolphin (*Tursiops truncatus*), beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*), and for pinnipeds in water, measurements of TTS are limited to harbor seals, elephant seals (*Mirounga angustirostris*), and California sea lions (*Zalophus californianus*). These studies examine hearing thresholds measured in marine mammals before and after exposure to intense sounds. The difference between the pre-exposure and post-exposure thresholds can be used to determine the amount of threshold shift at various post-exposure times. The amount and onset of TTS depends on the exposure frequency. Sounds at low frequencies, well below the region of best sensitivity, are less hazardous than those at higher frequencies, near the region of best sensitivity (Finneran and Schlundt, 2013). At low frequencies, onset-TTS exposure levels are higher compared to those in the region of best sensitivity (*i.e.*, a low frequency noise would need to be louder to cause TTS onset when TTS exposure level is higher), as shown for harbor porpoises and harbor seals (Kastelein *et al.*, 2019a, 2019b, 2020a, 2020b). In addition, TTS can accumulate across multiple exposures, but the resulting TTS will be less than the TTS from a single, continuous exposure with the same SEL (Finneran *et al.*, 2010; Kastelein *et al.*, 2014; Kastelein *et al.*, 2015a; Mooney *et al.*, 2009). This means that TTS predictions based on the total, cumulative SEL will overestimate the amount of TTS from intermittent exposures, such as sonars and impulsive sources. Nachtigall *et al.* (2018) and Finneran (2018) describe the measurements of hearing sensitivity of multiple odontocete species (bottlenose dolphin, harbor porpoise, beluga, and false killer whale (*Pseudorca crassidens*)) when a relatively loud sound was preceded by a warning sound. These

captive animals were shown to reduce hearing sensitivity when warned of an impending intense sound. Based on these experimental observations of captive animals, the authors suggest that wild animals may dampen their hearing during prolonged exposures or if conditioned to anticipate intense sounds. Another study showed that echolocating animals (including odontocetes) might have anatomical specializations that might allow for conditioned hearing reduction and filtering of low-frequency ambient noise, including increased stiffness and control of middle ear structures and placement of inner ear structures (Ketten *et al.*, 2021). Data available on noise-induced hearing loss for mysticetes are currently lacking (NMFS, 2018).

*Behavioral Harassment*—Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.*, Lusseau and Bejder, 2007; Weilgart, 2007; NRC, 2005).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); and, avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on

numerous intrinsic and extrinsic factors (*e.g.*, species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.*, Richardson *et al.*, 1995; Wartzok *et al.*, 2003; Southall *et al.*, 2007; Weilgart, 2007; Archer *et al.*, 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.*, 2012), and can vary depending on characteristics associated with the sound source (*e.g.*, whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B-C of Southall *et al.*, (2007) for a review of studies involving marine mammal behavioral responses to sound.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.*, bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.*, Croll *et al.*, 2001; Nowacek *et al.*, 2004; Madsen *et al.*, 2006; Yazvenko *et al.*, 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

*Stress responses* – An animal's perception of a threat may be sufficient to trigger stress responses consisting of some combination of behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune responses (*e.g.*, Seyle,

1950; Moberg, 2000). In many cases, an animal's first and sometimes most economical (in terms of energetic costs) response is behavioral avoidance of the potential stressor. Autonomic nervous system responses to stress typically involve changes in heart rate, blood pressure, and gastrointestinal activity. These responses have a relatively short duration and may or may not have a significant long-term effect on an animal's fitness.

Neuroendocrine stress responses often involve the hypothalamus-pituitary-adrenal system. Virtually all neuroendocrine functions that are affected by stress – including immune competence, reproduction, metabolism, and behavior – are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction, altered metabolism, reduced immune competence, and behavioral disturbance (*e.g.*, Moberg, 1987; Blecha, 2000). Increases in the circulation of glucocorticoids are also equated with stress (Romano *et al.*, 2004).

The primary distinction between stress (which is adaptive and does not normally place an animal at risk) and “distress” is the cost of the response. During a stress response, an animal uses glycogen stores that can be quickly replenished once the stress is alleviated. In such circumstances, the cost of the stress response would not pose serious fitness consequences. However, when an animal does not have sufficient energy reserves to satisfy the energetic costs of a stress response, energy resources must be diverted from other functions. This state of distress will last until the animal replenishes its energetic reserves sufficient to restore normal function.

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.*, Holberton *et al.*, 1996; Hood *et al.*, 1998; Jessop *et al.*, 2003; Krausman *et al.*, 2004; Lankford *et al.*, 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker, 2000; Romano *et al.*, 2002b) and, more rarely,

studied in wild populations (*e.g.*, Romano *et al.*, 2002a). For example, Rolland *et al.*, (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals will experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as “distress.” In addition, any animal experiencing TTS would likely also experience stress responses (NRC, 2003), however distress is an unlikely result of this project based on observations of marine mammals during previous, similar projects in the area.

*Masking*—Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.*, those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.*, 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.*, snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.*, pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.*, signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.*, sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.* on a day with strong wind and high waves), an



anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked.

*Airborne Acoustic Effects*—Although pinnipeds are known to haul out regularly near Skagway and Taiya Inlet, we believe that incidents of take resulting solely from airborne sound are unlikely due to the sheltered proximity between the proposed project area and these haulout sites (Taiya point, Gran Point, Yakutania Point, and in Taiya Inlet). There is a possibility that an animal could surface in-water, but with head out, within the area in which airborne sound exceeds relevant thresholds and thereby be exposed to levels of airborne sound that we associate with harassment, but any such occurrence would likely be accounted for in our estimation of incidental take from underwater sound. Therefore, authorization of incidental take resulting from airborne sound for pinnipeds is not warranted, and airborne sound is not discussed further here. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

#### *Marine Mammal Habitat Effects*

The MOS's construction activities could have localized, temporary impacts on marine mammal habitat and their prey by increasing in-water sound pressure levels and slightly decreasing water quality. However, the proposed location is not heavily used by marine mammals and is in close proximity to a heavily trafficked industrial area. Construction activities are of short duration and would likely have temporary impacts on marine mammal habitat through increases in underwater and airborne sound. Increased noise levels may affect acoustic habitat (see *Masking* discussion above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During impact and vibratory pile driving, elevated levels of underwater noise would ensonify the project area where both fish and mammals occur and could affect foraging success. Additionally, marine mammals may avoid the area during construction;

however, displacement due to noise is expected to be temporary and is not expected to result in long-term effects to the individuals or populations.

Temporary and localized increase in turbidity near the seafloor would occur in the immediate area surrounding the area where piles are installed or removed. In general, turbidity associated with pile installation is localized to about a 25-ft (7.6 meter) radius around the pile (Everitt *et al.*, 1980). The sediments of the project site will settle out rapidly when disturbed. Cetaceans are not expected to be close enough to the pile driving areas to experience effects of turbidity, and any pinnipeds could avoid localized areas of turbidity. Local strong currents are anticipated to disburse any additional suspended sediments produced by project activities at moderate to rapid rates depending on tidal stage. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals and do not discuss it further.

#### *In-Water Construction Effects on Potential Foraging Habitat*

The proposed activities would result in a minor loss of benthic habitat and potentially change underwater features for fish, but these changes are insignificant and limited to the area of redevelopment. The total seafloor area likely impacted by the project is relatively small compared to the available habitat in Southeast Alaska and does not include any Biologically Important Areas (BIA) or other habitat of known importance. The area is highly influenced by anthropogenic activities. Additionally, the total seafloor area affected by pile installation and removal is a small area compared to the vast foraging area available to marine mammals in the area. At best, the impact area provides marginal foraging habitat for marine mammals and fishes. Furthermore, pile driving at the project site would not obstruct movements or migration of marine mammals.

Avoidance by potential prey (*i.e.*, fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of this area

after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity.

### *Effects on Potential Prey*

Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.*, crustaceans, cephalopods, fish, zooplankton, *etc.*). Marine mammal prey varies by species, season, and location. Here, we describe studies regarding the effects of noise on known marine mammal prey.

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.*, Zelick and Mann, 1999; Fay, 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.*, 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds that are especially strong and/or intermittent low-frequency sounds, and behavioral responses, such as flight or avoidance, are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.*, feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented

effects of pile driving on fish, although several are based on studies in support of large, multiyear bridge construction projects (*e.g.*, Scholik and Yan, 2001, 2002; Popper and Hastings, 2009). Several studies have demonstrated that impulse sounds might affect the distribution and behavior of some fishes, potentially impacting foraging opportunities or increasing energetic costs (*e.g.*, Fewtrell and McCauley, 2012; Pearson *et al.*, 1992; Skalski *et al.*, 1992; Santulli *et al.*, 1999; Paxton *et al.*, 2017). However, some studies have shown no or slight reaction to impulse sounds (*e.g.*, Pena *et al.*, 2013; Wardle *et al.*, 2001; Jorgenson and Gyselman, 2009; Popper *et al.*, 2015).

SPLs of sufficient strength have been known to cause injury to fish and fish mortality. However, in most fish species, hair cells in the ear continuously regenerate and loss of auditory function likely is restored when damaged cells are replaced with new cells. Halvorsen *et al.*, (2012a) showed that a TTS of 4-6 dB was recoverable within 24 hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death, and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.*, 2012b; Casper *et al.*, 2013).

The most likely impact to fish from pile driving activities at the project areas would be temporary behavioral avoidance of the area. The duration of fish avoidance of an area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

Construction activities, in the form of increased turbidity, have the potential to adversely affect forage fish in the project area. Forage fish form a significant prey base for many marine mammal species that occur in the project area. Increased turbidity is expected to occur in the immediate vicinity (on the order of 10 ft (3 m) or less) of construction activities. However, suspended sediments and particulates are expected to

dissipate quickly within a single tidal cycle. Given the limited area affected and high tidal dilution rates, any effects on forage fish are expected to be minor or negligible. Finally, exposure to turbid waters from construction activities is not expected to be different from the current exposure; fish and marine mammals in the Passage Canal are routinely exposed to substantial levels of suspended sediment from natural and anthropogenic sources.

In summary, given the short-term and limited duration of sound associated with pile driving events and the relatively small areas being affected, pile driving activities associated with the proposed action are not likely to have a permanent adverse effect on any fish habitat, or populations of fish species. Any behavioral avoidance by fish of the disturbed area would be temporary and would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. Additionally, all in-water work will occur during the winter, when marine resident fish species are only present in limited numbers. Thus, we conclude that impacts of the specified activity are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

### **Estimated Take**

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers," and the negligible impact determinations.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A

harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as use of the acoustic sources (*i.e.*, vibratory and impact pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable. As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below, we describe how the proposed take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimates.

#### *Acoustic Thresholds*

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) of some degree (equated to Level A harassment).

*Level B Harassment* – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.*, 2007, 2021; Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1  $\mu$ Pa)) for continuous (*e.g.*, vibratory pile-driving, drilling) and above RMS SPL 160 dB re 1  $\mu$ Pa for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

MOS's proposed activity includes the use of continuous (vibratory pile driving) and impulsive (impact pile driving) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1  $\mu$ Pa are applicable.

*Level A Harassment* – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). MOS's proposed activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at:

[www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance](http://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance).

**Table 4 -- Thresholds Identifying the Onset of Permanent Threshold Shift**

	<b>PTS Onset Acoustic Thresholds*</b> (Received Level)	
<b>Hearing Group</b>	<b>Impulsive</b>	<b>Non-impulsive</b>
<b>Low-Frequency (LF) Cetaceans</b>	<i>Cell 1</i> $L_{pk,flat}$ : 219 dB $L_{E,LF,24h}$ : 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$ : 199 dB
<b>Mid-Frequency (MF) Cetaceans</b>	<i>Cell 3</i> $L_{pk,flat}$ : 230 dB $L_{E,MF,24h}$ : 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$ : 198 dB
<b>High-Frequency (HF) Cetaceans</b>	<i>Cell 5</i> $L_{pk,flat}$ : 202 dB $L_{E,HF,24h}$ : 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$ : 173 dB
<b>Phocid Pinnipeds (PW) (Underwater)</b>	<i>Cell 7</i> $L_{pk,flat}$ : 218 dB $L_{E,PW,24h}$ : 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$ : 201 dB
<b>Otariid Pinnipeds (OW) (Underwater)</b>	<i>Cell 9</i> $L_{pk,flat}$ : 232 dB $L_{E,OW,24h}$ : 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$ : 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (<math>L_{pk}</math>) has a reference value of 1 <math>\mu</math>Pa, and cumulative sound exposure level (<math>L_E</math>) has a reference value of 1 <math>\mu</math>Pa<sup>2</sup>s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI, 2013). However, American National Standards Institute (ANSI) defines peak sound pressure as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

*Ensonified Area*



Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving and vibratory pile driving and removal).

In order to calculate distances to the Level A harassment and Level B harassment thresholds for the methods and piles being used in this project, NMFS used acoustic monitoring data from other locations to develop source levels for the various pile types, sizes and methods (Table 5).

**Table 5 – Observed Source Levels for Pile Installation and Removal**

Pile size, Method	SPLs (dB)	Source
36-in to 48-in steel pile**, Impact Installation	193 RMS	Caltrans 2020
24-in steel pile, Impact Installation	189 RMS	Caltrans 2020
Up to 30-in steel pile*, Vibratory Installation and Removal	159 RMS	Caltrans 2020
36-in steel pile**, Vibratory Installation	170 RMS	Caltrans 2015
14-in timber pile, Vibratory Removal	158 RMS	Greenbusch 2018

Note: SPLs = single strike sound pressure level; RMS = root mean square.

\*Includes piles sizes: 10.75-in, 14-in, 16-in, 20-in, 24-in, 28-in, and 30-in.

\*\*Includes pile sizes: 36-in, 42-in, and 48-in.

#### *Level B Harassment Zones*

Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water

chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \log_{10} (R_1 / R_2),$$

Where:

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

$R_1$  = the distance of the modeled SPL from the driven pile, and

$R_2$  = the distance from the driven pile of the initial measurement.

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for MOS's proposed activities. The Level B harassment zones for the proposed activities are shown in Table 6.

#### *Level A Harassment Zones*

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources, such as pile installation or removal, the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the

duration of the activity, it would be expected to incur PTS. The isopleths generated by the User Spreadsheet used the same TL coefficient as the Level B harassment zone calculations (*i.e.*, the practical spreading value of 15). Inputs used in the User Spreadsheet (*e.g.*, number of piles per day, duration and/or strikes per pile, source levels) are presented in Table 1 and Table 5. The resulting isopleths are reported in Table 6.

**Table 6 -- Level A and Level B Harassment Isopleths for Impact Pile Driving**

Activity	Level A harassment zone (m)					Level B harassment zone (m)
	LF cetacean	MF cetacean	HF cetacean	Phocids	Otariids	
36-in to 48-in steel pile**, Impact Installation	2,345.7	83.4	2,794.1	1255.3	91.4	1,584.9
24-in steel pile, Impact Installation	1,245.8	44.3	1,483.9	666.7	48.5	857.7
Up to 30-in steel pile*, Vibratory Installation and Removal	12.1	1.1	17.9	7.4	0.5	3,981
36-in steel pile**, Vibratory Installation	65.6	5.8	97	39.9	2.8	21,544
14-in timber pile, Vibratory Removal	14.7	1.3	21.7	8.9	0.6	3,414.5

\*Includes piles sizes: 10.75-in, 14-in, 16-in, 20-in, 24-in, 28-in, and 30-in.

\*\*Includes pile sizes: 36-in, 42-in, and 48-in.

### *Marine Mammal Occurrence*

In this section, we provide information about the occurrence of marine mammals, including density or other relevant information that will inform the take calculations.

For marine mammal density information in the Skagway area we use data from the Pacific Navy Marine Species Density Database (U.S. Navy, 2021) and sources specific to the Skagway area to estimate take for marine mammals. The Marine Species

Density Database incorporates analyzed literature and research for marine mammal density estimates per season for the Gulf of Alaska and the Western Behm Canal. The Western Behm Canal is closer to the Project site and geographically more similar (an inlet compared to open ocean); therefore, density estimates for Western Behm Canal are used as proxies. Density estimates specific to Taiya Inlet or Lynn Canal are not available for any of the species addressed in this application, and therefore takes must be estimated based on the nearest available and most appropriate density estimates, plus site-specific knowledge and professional judgement. Table 7 density estimates are calculated based on the in-water work window (November - March) and based on winter density estimates of Western Behm Canal.

**Table 7—Density of Marine Mammal Species in the Project Area**

<b>Species</b>	<b>Density (per km<sup>2</sup>)</b>
Humpback whale	0.0081
Minke Whale	0.0017
Dall’s Porpoise	0.1210
Harbor Porpoise	0.4547
Killer Whale	0.0041
Harbor Seal	1.730
Steller Sea Lion	0.0122

#### *Take Estimation*

Here, we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and proposed for authorization.

Using the overall area of disturbance generated by pile removal and installation given calculated distances to attenuation below disturbance (Level B harassment) thresholds, incidental take for each activity is estimated by the following equation:

Incidental take estimate = species density \* ensonified area\* days of pile-related activity

Due to little observational data available for marine mammals in Taiya Inlet and Lynn Canal in the winter, this equation is a reasonable extrapolation for take estimates, which relies on the likelihood that a species is present within the ensonified area on a day where the proposed activity is occurring. The estimation of take by Level A harassment is based on the likelihood that marine mammals would enter the Level A harassment zone without detection.

**Table 8 – Proposed Authorized Amount of Taking and Percent of Stock**

Species	Stock/DPS	Take by Level A harassment	Take by Level B harassment	Total Take	Percent of Stock
Humpback whale	Hawaii DPS + Mexico DPS	2	14	16	<1
Minke Whale	Alaska	2	6	8	NA <sup>1</sup>
Dall's Porpoise	Alaska	10	173	183	1.4
Harbor Porpoise	Southeast Alaska	5	69	74	7
Killer Whale	Eastern North Pacific, Northern Residents, Southeast Alaska + Eastern North Pacific, Alaska Residents + West Coast Transients + Gulf, Aleutian, Bering Transients	2	90	92	2.91
Harbor Seal	Alaska – Lynn Canal/Stephens Passage	203	2,451	2,654	19.9
Steller Sea Lion	Eastern US + Western US	2	211	213	<1

<sup>1</sup> Alaska SAR does not have an estimated population size for the Alaska stock of minke whales due only a portion of the stock's range being surveyed and such few whales seen during stock abundance surveys.

## **Proposed Mitigation**

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat, as well as subsistence uses. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and,

(2) The practicability of the measures for MOS implementation, which may consider such things as cost and impact on operations.

NMFS proposed the following mitigation measures be implemented for MOS's pile installation and removal activities.

### *Mitigation Measures*

MOS must follow mitigation measures as specified below:

- Ensure that construction supervisors and crews, the monitoring team, and relevant MOS staff are trained prior to the start of all pile driving activity, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work;
- Employ Protected Species Observers (PSOs) and establish monitoring locations as described in the application and the IHA. MOS must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. For all pile driving and removal, at least one PSO must be used. The PSO will be stationed as close to the activity as possible;
- The placement of the PSOs during all pile driving and removal activities will ensure that the entire shutdown zone is visible during pile driving activities. Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone will not be visible (*e.g.*, fog, heavy rain), pile driving and removal must be delayed until the PSO is confident marine mammals within the shutdown zone could be detected;
- Monitoring must take place from 30 minutes prior to initiation of pile driving activity (*i.e.*, pre-clearance monitoring) through 30 minutes post-completion of pile driving activity;
- Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 9 are clear of marine mammals. Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals;

- MOS must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer;
- If a marine mammal is observed entering or within the shutdown zones indicated in Table 9, pile driving must be delayed or halted. If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone (Table 9) or 15 minutes have passed without re-detection of the animal; and
- As proposed by MOS, in water activities will take place only between civil dawn and civil dusk and for a limited duration after dusk with lighting when PSOs can effectively monitor for the presence of marine mammals; during conditions with a Beaufort Sea State of 4 or less; when the entire shutdown zone and adjacent waters are visible (*e.g.*, monitoring effectiveness is not reduced due to rain, fog, snow, *etc.*).

### *Shutdown Zones*

MOS will establish shutdown zones for all pile driving activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones would be based upon the Level A harassment zone for each pile size/type and driving method where applicable, as shown in Table 9.

For in-water heavy machinery activities other than pile driving, if a marine mammal comes within 10 m, work generating underwater noise will stop and vessels will



reduce speed to the minimum level required to maintain steerage and safe working conditions. A 10 m shutdown zone would also serve to protect marine mammals from physical interactions with project vessels during pile driving and other construction activities, such as barge positioning or drilling. If an activity is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone indicated in Table 9 or 15 minutes have passed without re-detection of the animal. Construction activities must be halted upon observation of a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met entering or within the harassment zone.

All marine mammals will be monitored in the Level B harassment zones and throughout the area as far as visual monitoring can take place. If a marine mammal enters the Level B harassment zone, in-water activities will continue and the animal's presence within the estimated harassment zone will be documented.

MOS would also establish shutdown zones for all marine mammals for which take has not been authorized or for which incidental take has been authorized but the authorized number of takes has been met. These zones are equivalent to the Level B harassment zones for each activity. If a marine mammal species not covered under this IHA enters the shutdown zone, all in-water activities will cease until the animal leaves the zone or has not been observed for at least 15 minutes, and NMFS will be notified about species and precautions taken. Pile driving will proceed if the non-IHA species is observed to leave the Level B harassment zone or if 15 minutes have passed since the last observation.

If shutdown and/or clearance procedures would result in an imminent safety concern, as determined by MOS or its designated officials, the in-water activity will be

allowed to continue until the safety concern has been addressed, and the animal will be continuously monitored.

**Table 9 – Proposed Shutdown Zones and Monitoring Zones**

Activity	Minimum shutdown zone					Harassment Zone
	Low-Frequency (LF) Cetaceans	Mid-Frequency (MF) Cetaceans	High-Frequency (HF) Cetaceans	Phocid	Otariid	
36-in to 48-in steel pile**, Impact Installation	2,350	85	2,795	1,260	95	1,585
24-in steel pile, Impact Installation	1,250	45	1,485	670	50	860
Up to 30-in steel pile*, Vibratory Installation and Removal	15	10	20	10	10	3,985
36-in steel pile**, Vibratory Installation	70	10	100	40	10	21,545
14-in timber pile, Vibratory Removal	15	10	25	10	10	3,415

\*Includes piles sizes: 10.75-in, 14-in, 16-in, 20-in, 24-in, 28-in, and 30-in.

\*\*Includes pile sizes: 36-in, 42-in, and 48-in.

### *Protected Species Observers*

The placement of PSOs during all construction activities (described in the **Proposed Monitoring and Reporting** section) would ensure that the entire shutdown zone is visible. Should environmental conditions deteriorate such that the entire shutdown zone would not be visible (*e.g.*, fog, heavy rain), pile driving would be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.

PSOs would monitor the full shutdown zones and the remaining Level A harassment and the Level B harassment zones to the extent practicable. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project areas outside the shutdown zones and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

#### *Pre-Activity Monitoring*

Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, PSOs would observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zones listed in Table 9, pile driving activity would be delayed or halted. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones would commence. A determination that the shutdown zone is clear must be made during a period of good visibility (*i.e.*, the entire shutdown zone and surrounding waters must be visible to the naked eye).

#### *Soft Start Procedures*

Soft start procedures provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors would be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Soft start would be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

Based on our evaluation of MOS's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation

measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

### **Proposed Monitoring and Reporting**

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;

- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,
- Mitigation and monitoring effectiveness.

### *Visual Monitoring*

Marine mammal monitoring must be conducted in accordance with the conditions in this section and the IHA. Marine mammal monitoring during pile driving activities would be conducted by PSOs meeting NMFS' following requirements:

- Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods would be used;
- At least one PSO would have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute education (degree in biological science or related field) or training for experience; and
- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator would be designated. The lead observer would be required to have prior experience working as a marine mammal observer during construction.

PSOs must have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;

- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- MOS must employ up to five PSOs during all pile driving activities depending on the size of the monitoring and shutdown zones. A minimum of two PSOs (including the lead PSO) must be assigned to the active pile driving location to monitor the shutdown zones and as much of the Level B harassment zones as possible.
- MOS must establish the following monitoring locations with the best views of monitoring zones as described in the IHA and Application.
- Up to five monitors will be used at a time depending on the size of the monitoring area. PSOs would be deployed in strategic locations around the area of potential effects at all times during in-water pile driving and removal. PSOs will be positioned at locations that provide full views of the impact hammering monitoring zone and the Level A harassment Shutdown Zones. The stations will be at the Railroad Dock, Yakutania Point, and Dyea Point. The vibratory monitoring zone will be monitored using PSOs stationed on boats anchored near the shoreline. All PSOs would have access to high-quality binoculars, range finders to monitor distances, and a compass to record bearing to animals as well as radios or cell phones for maintaining contact with work crews.

Monitoring would be conducted 30 minutes before, during, and 30 minutes after all in water construction activities. In addition, PSOs would record all incidents of marine mammal occurrence, regardless of distance from activity, and would document any behavioral reactions in concert with distance from piles being driven or removed. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

MOS shall conduct briefings between construction supervisors and crews, PSOs, MOS staff prior to the start of all pile driving activities and when new personnel join the work. These briefings would explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

#### *Acoustic Monitoring*

Acoustic monitoring will be conducted during in-water pile installation and removal, for each of the three scenarios (impact installation of steel piles, vibratory installation and removal of steel piles, and vibratory removal of timber piles). Collection of the acoustic data will be accomplished using a minimum of two hydrophones. At least one land-based microphone would also be deployed to record airborne sound levels. For underwater acoustic monitoring, the hydrophones will be placed such that there is a direct line of acoustic transmission through the water column between the impact or vibratory hammer and the hydrophones, without any interposing structures (including other piles) that could impede sound transfer, when possible. All acoustical recordings will be conducted at least 1 meter below the water surface and 1 meter above the sea floor, or as applicable to optimize sound recordings in the nearshore environment. Background noise recordings (in the absence of pile-related work) will also be made during the study to provide a baseline background noise profile.

All sensors, signal conditioning equipment, and sampling equipment will be calibrated at the start of the monitoring period to National Institute of Standards and Technology standards and will be rechecked at the start of each day.

A stationary two-channel hydrophone recording system will be deployed to record continuous sound associated with pile driving and removal activities during the monitoring period. Key methodological details are as follows:

- Prior to monitoring, water depth measurements will be made to ensure that hydrophones will not drag on the bottom during tidal changes. The hydrophones will be placed at least 1 meter below the surface and 1 meter above the seafloor. The depth with respect to the bottom may vary somewhat due to tidal changes and current effects.
- One hydrophone will be deployed to maintain a constant distance of approximately 10 meters from the pile-related noise source, and the other would be at a further distance from the pile-related noise source.
- The hydrophones, signal conditioning, and recording equipment will be configured to acquire maximum source levels without clipping recorded data.

Post-analysis of underwater sound level signals would include the following:

- Impact Pile Driving:
  1. Determination of the maximum absolute value of the instantaneous pressure within each strike.
  2. RMS value for the period of which 90 percent of the energy is represented (RMS 90, 5 percent to 95 percent) for each absolute peak pile strike.
  3. Peak SPL and pulse duration for each pile strike.
  4. Mean and standard deviation/error of the RMS 90 percent for all pile strikes of each pile.
  5. Rise time.



6. Number of strikes per pile and per day.
7. Sound exposure level (SEL) of the single pile strike with the absolute peak (PK), mean SEL.
8. Minimum, maximum, mean, and median cumulative SEL (cumulative SEL = single strike SEL +  $10 \times \text{LOG}(\text{number of pile strikes})$ ).
9. Frequency spectrum, between 20 Hz and 20 kHz, for up to eight successive strikes with similar sound level.

- Vibratory Pile Driving and Removal:

1. RMS values (median, standard deviation/error, minimum, and maximum) for each recorded pile. The 10-second, RMS-averaged values will be used for determining the source value and extent of the 120 dB underwater isopleth.
  2. Frequency spectra will be provided for each functional hearing group as outlined in NOAA's 2018 guidance (NOAA, 2018).
  3. All underwater source levels will be standardized to a reference distance of 10 meters (33 feet).
- Post-analysis of airborne noise will be presented in an unweighted format, and will include the following:
    1. The unweighted RMS values (average, minimum, and maximum) for each recorded pile. The average values will be used for determining the extent of the airborne isopleths relative to species specific criteria.
    2. Frequency spectra will be provided from 10 Hz to 20 kHz for representative pile-related activity.
    3. All airborne source levels will be standardized to a reference distance of approximately 15 meters (50 feet).
- Acoustic monitoring will be performed using a standardized method that will facilitate comparisons with other studies. In the event that pile-related noise

trends toward consistently surpassing calculated levels, NMFS will be contacted immediately to revise Shutdown Zones as needed.

### *Reporting*

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal activities, or 60 days prior to a requested date of issuance from any future IHAs for projects at the same location, whichever comes first. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets.

Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including the number and type of piles driven or removed and by what method (*i.e.*, impact or vibratory) and the total equipment duration for vibratory removal for each pile or total number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring;
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- Upon observation of a marine mammal, the following information:
  - Name of PSO who sighted the animal(s) and PSO location and activity at the time of sighting;
  - Time of sighting;
  - Identification of the animal(s) (*e.g.*, genus/species, lowest possible taxonomic level, or unidentifiable), PSO confidence in identification, and the composition of the group if there is a mix of species;

- Distance and bearing of each marine mammal observed relative to the pile being driven for each sightings (if pile driving was occurring at time of sighting);
- Estimated number of animals (min/max/best estimate);
- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, sex class, *etc.*);
- Animal's closest point of approach and estimated time spent within the harassment zone;
- Description of any marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.*, no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- Number of marine mammals detected within the harassment zones and shutdown zones; by species;
- Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensured, and resulting changes in behavior of the animal(s), if any; and
- If visibility degrades to where PSO(s) cannot view the entire harassment zones, additional PSOs may be positioned so that the entire width is visible, or work will be halted until the entire width is visible to ensure that any humpback whales entering or within the harassment zone are detected by PSOs.

If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

#### *Acoustic Monitoring Report*

The Acoustic Monitoring Report must include:

- Type and size of pile being driven, substrate type, method of driving during recordings (*e.g.*, hammer model, energy), and total pile driving duration;
- Whether a sound attenuation device is used and, if so, a detailed description of the device and the duration of its use per pile;
- A description of the sound monitoring equipment, including a detailed description of the depths and locations of the hydrophones relative to the pile being driven;
- For impact pile driving: Number of strikes and strike rate, depth of substrate to penetrate; pulse duration and mean, median, and maximum sound levels (dB re: 1  $\mu$ Pa); root mean square sound pressure level ( $SPL_{RMS}$ ), cumulative sound exposure level ( $SEL_{cum}$ ), peak sound pressure level ( $SPL_{peak}$ ), and single strike exposure sound level ( $SEL_{s-s}$ );
- For vibratory driving/removal (per pile): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1  $\mu$ Pa); Root mean square sound pressure level ( $SPL_{RMS}$ ), cumulative sound exposure level ( $SEL_{cum}$ ) (and timeframe over which the sound is averaged);
- One-third octave band spectrum and power spectral density plot for each pile monitored and average spectrum for each type of driving (*i.e.* impact, vibratory of steel, vibratory of timber); and,
- Environmental data, including but not limited to, the following: wind speed and direction, air temperature, humidity, surface water temperature, water depth (at the pile and hydrophone locations), characteristics of the bottom substrate into which the pile was driven, wave height, weather conditions, and other factors that could contribute to influencing the airborne and underwater sound levels (*e.g.*, aircraft, boats, *etc.*).

#### *Reporting Injured or Dead Marine Mammals*

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the MOS must immediately cease the specified activities and report the incident to the Office of Protected Resources (OPR) (*PR.ITP.MonitoringReports@noaa.gov*), NMFS and to the Alaska Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, MOS must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The MOS must not resume their activities until notified by NMFS. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

### **Negligible Impact Analysis and Determination**

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the

likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, our analysis applies to all species listed in Table 2 for which take could occur, given that NMFS expects the anticipated effects of the proposed pile driving/removal on different marine mammal stocks to be similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, NMFS has identified species-specific factors to inform the analysis.

Pile driving activities associated with the project, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment and Level A harassment from underwater sounds generated by pile driving. Potential takes could occur if individuals are present in the ensonified zone when these activities are underway.

No serious injury or mortality would be expected, even in the absence of required mitigation measures, given the nature of the activities. Further, limited take by Level A harassment is anticipated for humpback whales, minke whales, killer whales, harbor porpoise, and Steller sea lion due to the application of planned mitigation measures, such

as shutdown zones that encompass the Level A harassment zones for these species and the rarity of these species near the action area. The potential for harassment would be minimized through the construction method and the implementation of the planned mitigation measures (see **Proposed Mitigation** section).

Take by Level A harassment is proposed for all species, as there is potential for these species to be in the area. There is the possibility that an animal could enter a Level A harassment zone without being detected, and remain within that zone for a duration long enough to incur PTS. However, Level A harassment of these species is proposed to be conservative. Any take by Level A harassment is expected to arise from, at most, a small degree of PTS (*i.e.*, minor degradation of hearing capabilities within regions of hearing that align most completely with the energy produced by impact pile driving such as the low-frequency region below 2 kHz), not severe hearing impairment or impairment within the ranges of greatest hearing sensitivity. Animals would need to be exposed to higher levels and/or longer duration than are expected to occur here in order to incur any more than a small degree of PTS.

Further, the amount of take proposed for authorization by Level A harassment is low for both marine mammal stocks and species except harbor seals as they are common in the area. If hearing impairment occurs, it is most likely that the affected animal would lose only a few decibels in its hearing sensitivity. Due to the small degree anticipated, any PTS potential incurred would not be expected to affect the reproductive success or survival of any individuals, much less result in adverse impacts on the species or stock.

Additionally, some subset of the individuals that are behaviorally harassed could also simultaneously incur some small degree of TTS for a short duration of time. However, since the hearing sensitivity of individuals that incur TTS is expected to recover completely within minutes to hours, it is unlikely that the brief hearing impairment would affect the individual's long-term ability to forage and communicate

with conspecifics, and would therefore not likely impact reproduction or survival of any individual marine mammal, let alone adversely affect rates of recruitment or survival of the species or stock.

The Level A harassment zones identified in Table 6 are based upon an animal's exposure to pile driving of up to 5 steel piles or 18 timber piles removed per day. Given the short duration to impact drive or vibratory install or extract each pile and break between pile installations (to reset equipment and move piles into place), an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement in the area. If an animal was exposed to accumulated sound energy, the resulting PTS would likely be small (*e.g.*, PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

The nature of the pile driving project precludes the likelihood of serious injury or mortality. For all species and stocks, take would occur within a limited, confined area (adjacent to the project site) of the stock's range. Level A and Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein. Further, the amount of take proposed to be authorized is small when compared to stock abundance.

Behavioral responses of marine mammals to pile driving and removal in Taiya Inlet are expected to be mild, short term, and temporary. Marine mammals within the Level B harassment zones may not show any visual cues they are disturbed by activities or they could become alert, avoid the area, leave the area, or display other mild responses that are not observable, such as changes in vocalization patterns. Given that pile driving and removal would occur for only a portion of the project's duration, any harassment occurring would be temporary. Additionally, many of the species present in region would



only be present temporarily based on seasonal patterns or during transit between other habitats. These temporarily present species would be exposed to even smaller periods of noise-generating activity, further decreasing the impacts.

For all species, there are no known BIA near the project area that would be impacted by MOS's planned activities. While there is a Steller sea lion haulout at the end of Taiya inlet at Taiya point, this is approximately 13,300-m from the project site. Additionally, there is a rookery at Gran Point, which is Steller sea lion critical habitat, though this is outside the project area around 24 miles (38.6 km) from Skagway. Lastly, there is a summer feeding ground for humpback whales in Lynn Canal, however this is outside of Taiya Inlet, and approximately 50 miles (80.5 km) from Skagway.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on each stock's ability to recover. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activities will have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- Authorized Level A harassment would be very small amounts and of low degree;
- For all species, Taiya Inlet is a very small and peripheral part of their range;
- The intensity of anticipated takes by Level B harassment is relatively low for all stocks. Level B harassment would be primarily in the form of behavioral

disturbance, resulting in avoidance of the project areas around where impact or vibratory pile driving is occurring, with some low-level TTS that may limit the detection of acoustic cues for relatively brief amounts of time in relatively confined footprints of the activities;

- Effects on species that serve as prey for marine mammals from the activities are expected to be short-term and, therefore, any associated impacts on marine mammal feeding are not expected to result in significant or long-term consequences for individuals, or to accrue to adverse impacts on their populations;
- The ensonified areas are very small relative to the overall habitat ranges of all species and stocks, and would not adversely affect ESA-designated critical habitat for any species or any areas of known biological importance;
- The lack of anticipated significant or long-term negative effects to marine mammal habitat; and
- MOS would implement mitigation measures including soft starts and shutdown zones to minimize the numbers of marine mammals exposed to injurious levels of sound, and to ensure that take by Level A harassment is, at most, a small degree of PTS.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

### **Small Numbers**

As noted previously, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than

military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS proposes to authorize is below one-third of the estimated stock abundance for all species. This is likely a conservative estimate because we assume all takes are of different individual animals, which is likely not the case. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

The most recent estimate for the Alaska stock of Dall's porpoise was 13,110 animals, however this number just accounts for a portion of the stock's range. Therefore, the 183 takes of this stock proposed for authorization is believed to be an even smaller portion of the overall stock abundance.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals would be taken relative to the population size of the affected species or stocks.

### **Unmitigable Adverse Impact Analysis and Determination**

In order to issue an IHA, NMFS must find that the specified activity will not have an "unmitigable adverse impact" on the subsistence uses of the affected marine mammal species or stocks by Alaskan Natives. NMFS has defined "unmitigable adverse impact" in 50 CFR 216.103 as an impact resulting from the specified activity: (1) That is likely to

reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) Causing the marine mammals to abandon or avoid hunting areas; (ii) Directly displacing subsistence users; or (iii) Placing physical barriers between the marine mammals and the subsistence hunters; and (2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

In the Skagway area, sea lions and harbor seals are available for subsistence harvest authorized under the MMPA. The subsistence areas used by the Hoonah and Angoon communities are in the vicinity of the project area, but will not directly overlap with the project areas. During subsistence harvest in Southeast Alaska in 2012, the most recent year of available data from the Alaska Department of Fish and Game, 595 harbor seals were taken, while only 9 sea lions were taken in the region (Wolfe *et al.*, 2013). The proposed Project at worst may cause short-term disturbance to sea lions and harbor seals in the area.

The proposed activity will take place in Taiya Inlet, and no activities overlap with subsistence hunting areas; therefore, there are no relevant subsistence uses of marine mammals adversely impacted by this action. The proposed project is not likely to adversely impact the availability of any marine mammal species or stocks that are commonly used for subsistence purposes or to impact subsistence harvest of marine mammals in the region because:

- Construction activities are localized and temporary;
- Mitigation measures will be implemented to minimize disturbance of marine mammals in the action area; and,
- The project will not result in significant changes to availability of subsistence resources.

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the proposed mitigation and monitoring measures, NMFS has preliminarily determined that there will not be an unmitigable adverse impact on subsistence uses from MOS's proposed activities.

### **Endangered Species Act**

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species, in this case with the Alaska Regional Office.

NMFS is proposing to authorize take of the Central North Pacific stock of humpback whale and the Western US stock of Steller sea lion, which are listed or include individuals that are listed under the ESA.

The Permits and Conservation Division has requested initiation of section 7 consultation with the Alaska Region for the issuance of this IHA. NMFS will conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

### **Proposed Authorization**

As a result of these preliminary determinations, NMFS proposes to issue an IHA to MOS for conducting construction in Skagway, Alaska provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>.

## Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this notice of proposed IHA for the proposed terminal redevelopment project. We also request comment on the potential renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, 1-year renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical activities as described in the **Description of Proposed Activity** section of this notice is planned or (2) the activities as described in the **Description of Proposed Activity** section of this notice would not be completed by the time the IHA expires and a renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed renewal IHA effective date (recognizing that the renewal IHA expiration date cannot extend beyond 1 year from expiration of the initial IHA).
- The request for renewal must include the following:
  - (1) An explanation that the activities to be conducted under the requested renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: April 13, 2023.

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Kimberly Damon-Randall,  
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